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THE “ON SALE” BAR— *UMC ELECTRONICS CO. v. UNITED STATES*—THE FEDERAL CIRCUIT REJECTS REQUIREMENT OF REDUCTION TO PRACTICE

Article I, section 8 of the Constitution explicitly empowers Congress to secure to authors and inventors the exclusive right to control for limited time their writings and discoveries. With this power, Congress can promote the progress of science and the useful arts. Congress used this power to draft the patent laws of the United States,¹ under which a person is entitled to protect his discovery² unless certain conditions prevail.³ The right to obtain a grant of letters patent is limited by section 102(b) of Title 35 of the United States Code,⁴ which provides that an inventor will be entitled to a patent unless the

1. 35 U.S.C. §§ 1-376 (1982).

2. The word “patent” is derived from the Latin word *pater* meaning to be open. In common usage, “patent” signifies that which is open to view or open to public scrutiny. “Letters patent” refers to a written instrument which bears the seal of its author upon its face, but can be read without breaking the seal. Compare to “letters close” in which the document is first folded then sealed and cannot be read without breaking the seal. P.D. ROSENBERG, *PATENT LAW FUNDAMENTALS* 5 (1975).

3. See 35 U.S.C. § 102.

4. Section 102 spells out what is not to be considered novel in the patent law sense. It contains seven provisions which involve both subjective and objective determinations:

A person shall be entitled to a patent unless—

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or
- (c) he has abandoned the invention, or
- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or
- (f) he did not himself invent the subject matter sought to be patented, or
- (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or canceled it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

invention was "in public use or on sale" in the United States more than one year before the date on which the inventor filed the patent application.⁵

Congress structured section 102(b) as an instruction to the Patent Office to bar the issuance of a patent under certain circumstances.⁶ However, section 102(b) is now primarily used as a defense by an accused patent infringer.⁷ If the patentee violates the "on sale" provision of section 102(b), the result is a revocation, invalidation, termination, or cancellation of the patent grant and, therefore, an infringer would incur no liability.⁸

The legislative history and judicial interpretation of the "on sale" bar dates back to the nineteenth century, when it first appeared in the Patent Act of 1836.⁹ Since the early 1800's, courts have differed in their views as to what constitutes a "sale" and at what point the bar begins to run.¹⁰ One issue which divided the courts was whether the patented invention must have been reduced to practice prior to the critical date¹¹ in order for the "on sale" bar to apply.¹² Until its decision in *UMC Electronics v. United States*,¹³ the Federal Circuit had not squarely addressed whether reduction to practice was an absolute requirement of the "on sale" bar.¹⁴

5. 35 U.S.C. 102(b). "A person shall be entitled to a patent unless—(b) the invention was in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States."

6. See PAT. OFFICE, U.S. DEPT. OF COMMERCE, MANUAL OF PAT. EXAMINING PROC. §§ 2120-29 (5th ed. rev. 1987).

7. See Note, *New Guidelines for Applying the On Sale Bar to Patentability*, 24 STAN. L. REV. 730, 730 n. 1 (1972) [hereinafter Note, *New Guidelines*]. This note formulates four public policies which support the "on sale" provision of section 102(b): (1) a policy against removing inventions from the public domain which the public justifiably comes to believe are freely available due to commercialization; (2) a policy favoring prompt and widespread disclosure of inventions to the public; (3) a policy preventing commercial exploitation prior to filing; (4) a policy of giving the inventor reasonable amount of time following sales activity to determine whether a patent is worthwhile. These policies were distilled from pronouncements of the courts and from the occasional policy statements of Congress. Countless number of judicial opinions have cited this note as the authority for the rationale behind the "on sale" bar.

8. Colman, *A More Sophisticated Standard for the "On Sale" Provision of Sec. 102(b)*, 53 J. PAT. OFF. SOC'Y 674 (1971). See PAT. OFFICE, U.S. DEPT. OF COMMERCE, MANUAL OF PAT. EXAMINING PROC. §§ 2129, 2217 (5th ed. rev. 1987).

9. See Act of July 4, 1836, ch. 357, § 6, 5 Stat. 119. See also Note, *New Guidelines*, *supra* note 7, at 731-32 (provides summary of legislative history of the "on sale" provision).

10. See Zieg, *Developments in the Law of "On Sale"*, 58 J. PAT. OFF. SOC'Y 470 (1976) (provides in-depth historical summary of many judicial opinions that have attempted to put forth an ordered system of rules for an "on sale" bar analysis).

11. The critical date is defined as the date one year prior to the date when the patent application covering the invention is filed in the U.S. Patent Office. See 35 U.S.C. § 102(b).

12. A term of art developed out of the complicated area of patent law known as interference practice. Basically, reduction to practice of an invention has occurred when the inventor's conception is embodied in such a form as to render it capable of practical and successful use. However, the invention need not be in perfect form or be a commercial success. See *infra* note 69 for a discussion of interference practice.

13. 816 F.2d 647 (Fed. Cir. 1987).

14. See *infra* note 69.

In *UMC*, the Federal Circuit held that reduction to practice was not an absolute requirement to the "on sale" provision of section 102(b).¹⁵ Further, the court found an inherent inconsistency in the well-accepted three-part test of *Timely Products Corp. v. Arron*.¹⁶ The Federal Circuit in *UMC* did not specify when the reduction to practice standard should apply,¹⁷ and further failed to formulate a standard to determine when something less than a complete embodiment of the patented invention would suffice to trigger the bar.¹⁸ Instead, the Federal Circuit favored an approach that balanced all the circumstances surrounding a sale or offer to sell against the policies underlying section 102(b).¹⁹

This Note will provide a brief historical review of the more important developments of the "on sale" bar, with a detailed focus on recent court decisions. In addition, it will analyze the Federal Circuit's recent holding and dissent in *UMC Electronics v. United States*. This Note will also examine the affect *UMC* will have on future cases and its impact on the practice of patent law in general. Finally, a test will be proposed to determine at what point the "on sale" bar should begin to run.

I. BACKGROUND OF THE "ON SALE" BAR

A. Historical Review and Policy Considerations

United States patent law encourages scientific development for the benefit of the general public by granting limited monopolies to make, use, and sell inventions.²⁰ In exchange for the monopoly, the patentee must disclose the detailed procedures, formulations and methods in the patent application which would allow one skilled in the art to reproduce the invention without undue experimentation.²¹ Complete disclosure is required so that other inventors are

15. 816 F.2d at 656.

16. 523 F.2d 288 (2d Cir. 1975). See *infra* note 96 and accompanying text for a discussion of the *Timely Products* test.

17. 816 F.2d at 656.

18. *Id.* at 657.

19. *Id.* at 656.

20. See 35 U.S.C. §§ 101, 154 (1982). A patent is a grant by the government to an inventor of the right to exclude others from making, using, or selling the invention throughout the United States. What is granted is not the right to make, use, or sell, but only the right to exclude others. Therefore, an inventor may not necessarily have the benefit of a monopoly on his invention, he may have to secure a license under a prior patent to practice his own patented invention. The duration of the patent grant is 17 years. See generally P.D. ROSENBERG, *PATENT LAW FUNDAMENTALS* (1975) (general treatise detailing history and policy rationale for United States patent system).

21. See 35 U.S.C. § 112. This section provides the statutory basis for a complete written disclosure of an invention. The patent is frequently referred to as a contract or franchise with consideration to the government being disclosure of the invention to the public and the right to use it after the grant expires. Accordingly, there is a failure of consideration invalidating the patent if the disclosure is insufficient to enable a skilled person to make and use the invention. 35 U.S.C. § 112 requires that the inventor set forth the best mode of his invention in such full, clear, concise and exact terms to enable any person skilled in the art to make and use the invention without undue experimentation.

provided with new ideas upon which to build and improve, thereby avoiding the time and expense reinventing the patented would involve.²² When the patent expires, the subject matter of the patent disclosure belongs to the public.²³ To prevent an extension of the limited monopoly and to further the public interest in having an invention readily available, Congress enacted section 102(b) of Title 35.²⁴ The law places a strict limitation upon the time in which an inventor may delay the filing of a patent application.²⁵ This limitation prevents the inventor from maintaining the secrets of his invention while exploiting them through commercial sales activities and, when ultimately faced with competition, applying for the limited monopoly.

The "on sale" bar provision first appeared in the Patent Act of 1836.²⁶ In 1839, Congress added a two-year grace period in which the inventor could market his product without losing the option of protecting his invention.²⁷ The inventor had to file a patent application with the Patent and Trademark Office within two years of the date the invention was placed on sale. The grace period gave the inventor the time needed to develop an invention from its conception²⁸ to a point where the inventor was confident that the invention had utility for its intended purpose.²⁹ In 1939, Congress amended the Act and changed the grace period to one year.³⁰

Using the grace period provided by the statute, the inventor could readily determine the critical date on which he would have to file his patent application. However, the inventor could not readily determine what activities constituted placing the invention on sale and how complete the invention needed to be to

22. See Note, *New Guidelines*, *supra* note 7, at 731. Although 35 U.S.C. § 112 requires the inventor to set forth an enabling disclosure, the courts have held that some experimentation by others does not preclude enablement and that optimality of the invention is not required for a valid patent. *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569 (Fed. Cir. 1984).

23. See *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 231 (1964).

24. Colman, *supra* note 8, at 674-76; See Note, *The "On Sale" Provision as a Bar to Patentability*, 27 U. PITT. L. REV. 887, 888 (1966).

25. See 35 U.S.C. § 102(b) (1982) (inventor is allowed one year grace period following placement of his invention "on sale").

26. See Act of July 4, 1836, ch. 357, § 6, 5 Stat. 119.

27. Act of March 3, 1839, ch. 88, § 7, 5 Stat. 354.

28. Conception, in the patent-law sense, involves the formation, in the mind of the inventor, of the complete means for solving a problem. *Townsend v. Smith*, 36 F.2d 292, 295 (C.C.P.A. 1929).

29. See Note, *New Guidelines*, *supra* note 7, at 732 (Congress reasoned that inventor needed a fixed period of time to make up his mind whether or not to file an application for patent).

30. S. REP. No. 876, 76th Cong., 1st Sess. 1-2 (1939); H.R. REP. No. 961, 76th Cong., 1st Sess. 1-2 (1939).

In 1839, when the period of 2 years was first adopted, it may have been a proper length of time for an inventor to make up his mind whether or not to file an application for patent. Under present conditions, 2 years appears unduly long and operates as a handicap to industry

One year is believed to be a very fair period to all concerned.

Id.

trigger the running of the bar. This issue has proven to be extremely difficult for the courts to resolve.³¹

Prior to 1975, courts mechanically applied the "on hand" rule.³² However, recent decisions have looked to four public policies underlying the "on sale" bar.³³ The first three of these policies encourage prompt filing of a patent application and the fourth concerns fairness to the inventor.³⁴ The first policy discourages the inventor from removing inventions from public use which, because of prolonged sales activity, the public believes are freely available.³⁵ Anyone may freely make, use, or sell the invention if it is in the public domain.³⁶ The inventor should not be able to preclude others from making or using the invention on the grounds that competition has developed.³⁷ If an inventor could withhold his invention from the public until faced with competition, the competition would be penalized through loss of their investment.³⁸

The second policy favors prompt and widespread disclosure of new inventions to the public.³⁹ Prompt disclosure furthers a fundamental goal of the

31. See generally Choate, "On Sale"—Review and Circumspection, 47 J. PAT. OFF. SOC'Y 906 (1965) (advocates that inventor who has created a new product and has moved it to the market place where it can create new business and employment should only be denied a patent if he fails to file within one year from the date of first delivery or successful commercial installation); Zieg, *supra* note 10, at 470 (relates importance of understanding complex law of "on sale" with question of "fraud on the Patent Office" and possible antitrust violations for enforcing a patent which is later held invalid).

32. A trilogy of cases were often cited because of the easily applied rules they set forth for determining whether an invention had been "on sale" more than one year prior to the patent application filing date. See *B.F. Sturtevant Co. v. Massachusetts Hair & Felt Co.*, 124 F.2d 95 (1st Cir. 1941), *cert. denied*, 315 U.S. 823 (1942); *Burke Elec. Co. v. Independent Pneumatic Tool Co.*, 234 F. 93 (2d Cir.), *cert. denied*, 241 U.S. 682 (1916); *McCreery Eng'g Co. v. Massachusetts Fan Co.*, 195 F. 498 (1st Cir. 1912). In *Sturtevant*, the court found that a contract for made-to-order fans did not place the invention "on sale" before the critical date because the event which triggers the running of the bar was not the date of the order but rather the date the order was filled. 124 F.2d at 97. In *Burke*, the inventor contracted to sell his invention prior to the critical date, however, only a prototype was in existence, which had yet to be approved by the customer. 234 F. at 93. The court concluded that the invention was not "on sale" because the lack of approval prevented the invention from being "on hand" and ready for delivery. *Id.* Finally, in *McCreery*, the court held that the invention was not complete and not "on sale" prior to the critical date because only the plans were then in existence. 195 F. at 500-01.

Collectively, these three cases support the "on hand" doctrine which pre-1975 decisions relied on to support the theory that a rule otherwise would discourage and hamper inventors from going to persons for assistance and financing to complete the invention. In none of these cases were the public policies underlying the "on sale" bar discussed. The test was simply whether the invention was on hand ready for delivery prior to the critical date.

33. See *Timely Prod. Corp. v. Arron*, 523 F.2d 288 (2d Cir. 1975) (rejects rigid "on hand" doctrine in favor of legislative policy underlying § 102(b)). See generally Note, *New Guidelines*, *supra* note 7, at 736-39 (four public policies underlying the "on sale" bar are set forth).

34. See Note, *New Guidelines*, *supra* note 7, at 732-33.

35. *Id.* at 733. The policy of avoiding detrimental reliance on pre-application sales activity is well founded because the public may believe the invention is in the public domain. *Id.*

36. *Id.*

37. See *supra* note 20.

38. See Note, *New Guidelines*, *supra* note 7, at 733.

39. *Id.*

patent system. By allowing an inventor a limited monopoly, invention is encouraged. The public is benefitted by both the new invention and the dissemination of knowledge which others can use to further develop the state of the art.⁴⁰ Without the grace period, the inventors would have a choice of filing a patent application which discloses the invention to the public, in return for a seventeen-year monopoly, or keeping their invention secret, hoping for permanent exclusivity.⁴¹ With the one-year grace period, inventors are forced to file promptly or risk possible forfeiture of their right to a patent because of prior sales activity.⁴² In this way, the "on sale" bar forces inventors to reveal new and useful information to the public, thus contributing to the spectrum of public knowledge.⁴³

The third policy which supports the "on sale" bar is the need to prevent the inventor from the exclusive commercial exploitation of his invention beyond the statutory seventeen-year period.⁴⁴ If commercial exploitation was allowed beyond the one-year grace period, the inventor would have the best of both worlds—an indefinite time period without disclosure and a seventeen-year monopoly once a patent was granted.⁴⁵ Therefore, the "on sale" bar forces the inventor to choose between seeking patent protection promptly following sales activity or taking his chances with his competitors without the benefit of patent protection.⁴⁶

The fourth and final policy favors the inventor. Once the invention is placed on sale, the inventor has one year in which he must decide whether or not pursuing patent protection is a worthwhile investment.⁴⁷ Congress recognized that an inventor needs time to develop his ideas.⁴⁸ Completeness of an invention furthers the goal of the patent system because patent applications based on incomplete experiments do not ordinarily promote the progress of the useful arts.⁴⁹ Further, from the inventor's point of view, a filing based on an incomplete invention would be a waste of time and may necessitate multiple filings for the same basic idea.⁵⁰

Although recent decisions have focused on these four policies which underlie the "on sale" provision of section 102(b), the courts have traditionally adhered to rigid rules regarding the "on sale" bar.

40. *Id.*

41. *Id.* at 734.

42. *Id.*

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.* at 734-35.

47. *See supra* note 25.

48. *See Note, New Guidelines, supra* note 7, at 735 n.36 (time is required to develop imperfect inventions in order to allow improvement and adoption to practical uses).

49. *Id.* at 735.

50. *Id.*

B. General Rules

Once an alleged infringer has established "on sale" activities on the part of the patent owner, the burden generally shifts to the patent owner to show by clear and convincing evidence that the sale was for experimental purposes.⁵¹ If the patentee can prove that the sale or offer to sell was incidental to experimentation, then the bar is not triggered.⁵² In addition, no actual sale is required to find that an invention is on sale within the meaning of section 102(b). Under this provision, a mere offer to sell is sufficient.⁵³ Moreover, a single sale⁵⁴ or a sale that is conditional upon the satisfaction of the buyer, if executed prior to the critical date is sufficient to constitute a "sale" under the terms of the statute.⁵⁵

Many previous decisions involving section 102(b) failed to distinguish between the "public use" and "on sale" provisions. There is no Supreme Court decision which addresses the "on sale" provision.⁵⁶ Current case law treats "public use" and "on sale" as separate events and one may occur without the other.⁵⁷ The word "public" in section 102(b) modifies the word "use" and not the phrase "on sale."⁵⁸ Accordingly, in *Hobbs v. United States Atomic Energy Comm'n*,⁵⁹ the sale of a device to be used under conditions of government secrecy was sufficient to trigger the "on sale" bar even though

51. *UMC Electronics Co. v. United States*, 816 F.2d 647, 656 (Fed. Cir. 1987); *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1150 (Fed. Cir. 1983). There is an important distinction between the burden of proof which rests with the challenger to a patent and the burden of going forward which rests with the patentee. Under 35 U.S.C. § 282, an issued patent is accorded a presumption of validity and it is this presumption that a challenger must overcome by clear and convincing evidence. This presumption is never weakened nor is the burden of proof ever shifted to the patentee. If a challenger can establish prima facie sales activity, then it falls to the patentee to come forward with evidence, such as the experimental exception requirements, to defeat the prima facie case.

52. See 2 CHISUM, PATENTS § 6.02[7] (1987). A mere labeling of the method employed in making an invention as a "laboratory" method, or reliance on experiments conducted during commercial manufacture of the invention, will not be sufficient to support the experimental exception. *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144 (Fed. Cir. 1983).

53. *General Elec. Co. v. United States*, 654 F.2d 55, 60 (Ct. Cl. 1981). See *Chromalloy Am. Corp. v. Alloy Surfaces Co.* 339 F. Supp. 859, 869 (D. Del. 1972).

54. *General Elec. Co.*, 654 F.2d at 60. See *Tool Research & Eng'g Corp. v. Honcor Corp.*, 367 F.2d 449, 453 (9th Cir. 1966), cert. denied, 387 U.S. 919 (1967).

55. *General Elec. Co.*, 654 F.2d at 60. See *Taussig v. Jack & Jill One Hour Cleaners*, No. 12, 462 F. Supp. 1026, 1040 (N.D. Ohio 1978), aff'd without opinion, 633 F.2d 215 (6th Cir. 1980).

56. See, e.g., *Hall v. MacNeale*, 107 U.S. 90 (1883) (Supreme Court analyzed case in terms of a public use even though the claimed invention was clearly sold prior to the critical date).

57. See *Handgards v. Ethicon*, 743 F.2d 1282, 1291 (9th Cir. 1984), cert. denied, 469 U.S. 1190 (1985); *Dart Industries v. E.I. du Pont De Nemours & Co.*, 489 F.2d 1359, 1364 (7th Cir. 1973).

58. See *Robbins Co. v. Lawrence Mfg. Co.*, 482 F.2d 426, 432 (9th Cir. 1973); *Piet v. United States*, 176 F. Supp. 576, 584 (S.D. Cal. 1959), aff'd, 283 F.2d 693 (9th Cir. 1960).

59. 451 F.2d 849, 860 (5th Cir. 1971) (third party, without consent of the inventor, placed special valve on sale more than one year prior to filing date of inventor's patent application).

the sale was not public. Furthermore, the "on sale" bar is activated not only if the inventor makes the sale, but the sales activity of an unrelated third party also could trigger the running of the statutory time period.⁶⁰ Similarly, a secrecy agreement under which an invention is disclosed to third parties is irrelevant to the question of whether the invention is on sale.⁶¹ In *Jones v. Tucker Aluminum Prod. of Miami*,⁶² a device which was on display in a showroom was considered on sale. The viewers could determine the method and design of operation by merely viewing the device. However, the shipment of a device from one corporate division to another within the same company does not place the device on sale.⁶³ Even if the sale is consummated in a foreign country, the device is on sale if substantial prefatory sales activity occurs in the United States.⁶⁴ Any offer to sell made in this country constitutes prefatory activity.⁶⁵

C. Completeness of the Invention

An invention is not considered complete until both conception and a reduction to practice have occurred.⁶⁶ An invention remains a concept in the mind of the inventor until it is physically disclosed, either by oral or written means.⁶⁷ When an inventor has completely formulated the means of solving a problem, conception has occurred.⁶⁸ On the other hand, no invention is

60. See *LaPorte v. Norfolk Dredging Co.*, 787 F.2d 1577, 1581 (Fed. Cir.), *cert. denied*, 107 S. Ct. 274 (1986). An exception to this general rule exists where a patented method is kept secret and remains secret after a sale of the unpatented product of the method. Such a sale prior to the critical date is a bar if engaged in by the patentee or the patent applicant, but not if engaged in by another. *In re Caveney*, 761 F.2d 671, 676 (Fed. Cir. 1985).

61. See *In re Yarn Processing Pat. Litig.*, 360 F. Supp. 74, 80 (S.D. Fla. 1973) (demonstration of invention under secrecy agreement is legally irrelevant to "on sale" claim).

62. 233 F. Supp. 403, 409 (S.D. Fla. 1964) (public display of patented awning window prior to critical date allowed even layman of slight mechanical knowledge to determine method and design of operation).

63. See *Union Carbide Corp. v. Filtrol Corp.*, 170 U.S.P.Q. (BNA) 482, 521 (C.D. Cal. 1971), *aff'd*, 179 U.S.P.Q. (BNA) 209 (9th Cir. 1973) (separate divisions of corporation are not separate entities for purposes of the "on sale" bar).

64. See *Robbins Co. v. Lawrence Mfg. Co.*, 482 F.2d 426, 434 (9th Cir. 1973) (United States company submits offer to sell tunnel boring machine to Australian company prior to critical date). See also *In re Caveney*, 761 F.2d 671, 676-77 (Fed. Cir. 1985) (British corporation sent samples to its exclusive United States distributor who then placed order; sale held to be "within this country").

65. *Robbins*, 482 F.2d at 434. See also *Caveney*, 761 F.2d at 676-77 (offer made from England directed to place of business in United States sufficient to find "on sale" activity).

66. See P.D. ROSENBERG, *PATENT LAW*, *supra* note 2, at 136-37 (1975). There are two types of reduction to practice, constructive and actual. Constructive reduction to practice is deemed to have occurred upon the filing of a patent application which complies with the requirements of 35 U.S.C. § 112. Actual reduction occurs when the inventor has constructed or performed a process that embodies all the elements of the claimed invention. Both conception and reduction can occur simultaneously. *Id.*

67. See Colman, *supra* note 8, at 676-77.

68. See P.D. ROSENBERG, *PATENT LAW*, *supra* note 2, at 136.

complete until it has been actually reduced to practice.⁶⁹ Actual reduction to practice occurs when the inventor constructs a product or performs a process that is within the scope of the patent claims and demonstrates the capacity of the inventive idea to achieve its intended purpose.⁷⁰ The difficulty in determining when an invention is completely functional and therefore reduced to practice is usually related to the complexity of the invention.⁷¹ For example, an invention based on new and complex technology requires extensive testing before an inventor is confident that his invention is complete and functional. A review of caselaw shows that courts use a less restrictive test in finding "reduction to practice" in connection with "on sale" bar situations than they use in an interference situation. In an interference situation the invention is normally required to be successfully tested in its intended environment.⁷²

For years courts struggled with the concept of reduction to practice. For example, in *Americo Contact Plate Freezers v. Belt-Ice Corp.*,⁷³ the inventor constructed a wooden mock-up of a machine embodying the essential elements of the claimed invention. The invention contained moving parts to demonstrate its operation but was not actually capable of freezing packaged foods. The mock-up was shown to a potential customer over one year prior to the date the patent application was filed. That customer later contracted to purchase two machines.⁷⁴ Construction of the machines began immediately after the contract was executed, however, the machines were not operable until after the critical date.⁷⁵ The Ninth Circuit held that the machine had not been "on sale" within the meaning of section 102(b) because no fully operative machine had been completed.⁷⁶

69. *Id.* at 137. Reduction to practice is a term of art which developed from interference practice as a tool to determine priority between two rival inventors. *Id.* at 135-36. Interference practice concerns the priority of invention. The basis for the interference proceeding is the policy of the United States to award a patent only to the first inventor. 35 U.S.C. § 102(g) (1982). This is in contradistinction to the majority of other countries which award a patent based on first to file. An interference can be declared only between cases claiming substantially the same invention and it must also appear that there exists a reasonable possibility that the junior party will prevail. The Board of Patent Interferences formally institutes and declares the interference. The party who ultimately prevails will be entitled to claim only that for which there is complete support in his patent application. See P.D. ROSENBERG, *PATENT LAW*, *supra* note 2, at 147-48.

70. See 2 CHISUM, *supra* note 22, at § 10.06. See also *Corona Cord Tire Co. v. Dovan Chem. Corp.*, 276 U.S. 358 (1928). "A process is reduced to practice when it is successfully performed. A machine is reduced to practice when it is assembled, adjusted, and used. A manufacture is reduced to practice when it is completely manufactured. A composition of matter is reduced to practice when it is completely composed." *Id.* at 383.

71. See Note, *New Guidelines*, *supra* note 7, at 743. A simple improvement to an already existing mechanical device may be obvious from detailed plans or a crude mockup.

72. See Zieg, *supra* note 10, at 499-500.

73. 316 F.2d 459, 460-61 (9th Cir.), *cert. denied*, 375 U.S. 902 (1963).

74. 316 F.2d at 462.

75. *Id.* at 461.

76. *Id.* at 465.

In contrast to *Americo*, the court in *Langsett v. Marmet Corp.*⁷⁷ held a patent invalid under section 102(b) where no complete operative model of the invention existed. The case involved an aluminum window frame designed to prevent condensation from forming on the inside of the frame.⁷⁸ Before the critical date, the inventor showed drawings of the proposed frames as well as sections of a corner of a window as a sample to some experienced architects.⁷⁹ The architects were satisfied with the invention's feasibility and included drawings of them in a bid proposal.⁸⁰ The court found that the invention had been reduced to practice because a complete showing of the frame had been made to the architects, and the inventor had confidence in the workability of the invention.

When an ambiguity as to whether the invention was reduced to practice exists, the inventor's intent regarding his activities becomes important. This is illustrated in *Philco Corp. v. Admiral Corp.*⁸² Admiral contended that the Philco patent was invalid because of "on sale" activities prior to one year of the filing date.⁸³ Philco had invited one of its largest distributors, Firestone, to a secret showing of Philco's new television sets before public release and prior to the critical date of several Philco patents.⁸⁴ The sets shown to Firestone were handmade mock-ups and could not perform electronically.⁸⁵ At the showing, Firestone indicated the quantities of sets they wanted delivered when the sets were available.⁸⁶ The court held the patents invalid because Philco made a "competitive" showing more than one year prior to the application date.⁸⁷ The court held that the showing was a sales effort. The court found that Philco intended to gain a competitive advantage over other television manufacturers and that Philco was confident of the completeness of the invention. The court further determined that the commercial exploitation beyond the one-year mark undermined the statutory balance of policies.⁸⁸

In *Timely Products Corp. v. Arron*, the Second Circuit Court of Appeals devised a three-part test to determine when a patent application would be barred under section 102(b).⁸⁹ In *Timely Products*, the patent in dispute related to improved battery-heated socks.⁹⁰ Prior to the critical date, an advertisement

77. 231 F. Supp. 759 (W.D. Wis. 1964).

78. *Id.* at 760.

79. *Id.* at 766.

80. *Id.* at 768.

81. *Id.* at 770.

82. 199 F. Supp. 797 (D. Del. 1961). *See also* *Western Marine Elec. v. Furuno Elec. Co.*, 764 F.2d 840 (Fed. Cir. 1985) (using a totality of circumstances test, court looked to manufacturer's intent to find device "on sale").

83. *Id.* at 814.

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.* at 816.

88. *Id.* at 817.

89. 523 F.2d 288 (2d Cir. 1975).

90. *Id.* at 291.

for similar heated socks, which were covered by a patent owned by the same inventor, appeared in a national magazine.⁹¹ Evidence further established that the inventor showed samples of the improved socks to a potential customer and solicited orders.⁹² The patent owner, relying on the "on hand" doctrine, argued that the "on sale" bar did not apply because the improved socks were not actually available for delivery until after the critical date.⁹³ The inventor claimed that in order for an invention to be on sale under the "on hand" doctrine, the invention must have existed in its usable form and be "on hand" and ready for delivery prior to the critical date.⁹⁴

The court rejected the "on hand" doctrine, concluding that the doctrine often produced results contrary to the basic policies underlying section 102(b).⁹⁵ In its place, the court set forth a three-part test which required that: 1) the invention be embodied in or be obvious in view of the object offered; 2) the invention have been tested to verify its operability; 3) the sale be primarily for profit.⁹⁶

The court found that the socks offered for sale had been made, were successfully tested, and that the inventor's purpose was purely commercial.⁹⁷ Although the socks actually offered were not the improved model of the

91. *Id.* at 299.

92. *Id.*

93. *Id.* See generally 2 CHISUM, *supra* note 52, at § 6.02[6] (historical background to "on hand" doctrine); Note, *New Guidelines*, *supra* note 7, at 736 (describes declining use of the "on hand" doctrine).

94. Note, *New Guidelines*, *supra* note 7, at 736. The courts, when following the "on hand" doctrine, found an invention to be on sale when they were on hand ready for delivery regardless whether it had been sold or not. *Burke Elec. Co. v. Independent Pneumatic Tool Co.*, 234 F. 93 (2d Cir.), *cert. denied*, 241 U.S. 682 (1916). Thus, where shelf articles were on hand and ready for delivery, any offer for sale put them "on sale" and caused a forfeiture of rights if both conditions occurred prior to the critical date.

95. 523 F.2d at 302. The court cited Judge Learned Hand's opinion in *Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516 (2d Cir.), *cert. denied*, 382 U.S. 840, *rehg. denied*, 382 U.S. 881 (1946), wherein it was "reasoned that an inventor should not be allowed to use an invention commercially, even though secretly, for more than one year prior to his application, because this would effectively extend the limited monopoly created by the patent laws." 523 F.2d at 302.

96. In its entirety, the test provides:

- (1) The complete invention claimed must have been embodied in or obvious in view of the thing offered for sale [cites omitted]. Complete readability of the claim on the thing offered is not required because whatever is published (or sale) more than one year prior to the filing of a patent application becomes part of the prior art over which the claim must be patentable;
- (2) The invention must have been tested sufficiently to verify that it is operable and commercially marketable. This is simply another way of expressing the principle that an invention cannot be offered for sale until it is completed, which requires not merely its conception but its reduction to practice;
- (3) Finally, the sale must be primarily for profit rather than for experimental purposes [cites omitted].

Id. at 302 (citations omitted).

97. *Id.* at 302.

patent in dispute, the court agreed with the district court that the improved model was obvious in light of the item displayed.⁹⁸ The patent was held invalid because the invention was on sale more than one year prior to the application of patent, contrary to the provisions of section 102(b).⁹⁹

Courts began applying the *Timely Products* three-part test immediately. In *General Electric Company v. United States*,¹⁰⁰ the Court of Claims adopted a number of the Second Circuit's general rules relating to the "on sale" bar, including the four underlying policies of section 102(b).¹⁰¹ General Electric ("GE") sued the United States seeking compensation for the unauthorized use of GE's patented gyroscope invention. GE claimed that five competing companies had manufactured GE's invention for the government.¹⁰² In defense, the United States contended that GE's invention had been on sale prior to the critical date and therefore, pursuant to section 102(b), the patent was invalid.¹⁰³ GE, in defending against the "on sale" bar claim, argued that the prototype had not been "reduced to practice" prior to the critical date.¹⁰⁴

The court reviewed the holdings of various circuit courts and concluded that no controlling authority conclusively resolved whether reduction to practice by one other than the inventor or one under his control is a prerequisite to the "on sale" bar.¹⁰⁵ However, if the invention has been reduced to practice, then precedent clearly holds that section 102(b) applies when an unrelated third party has placed the invention on sale.¹⁰⁶ The court reviewed the four policies underlying section 102(b) and concluded that when an unrelated third party places the invention on sale neither the policy favoring the filing of only worthwhile inventions nor the policy against extended commercial exploitation was implicated.¹⁰⁷ However, the court did find that the two other considerations, the policy against removing inventions from the public domain and the policy favoring early patent filing, were sufficiently important to require the invalidation of a patent when a third party placed the invention on sale.¹⁰⁸ Although the court did not reach the issue of whether reduction to practice is an absolute requirement of the "on sale" bar, it did suggest that a strict

98. *Id.*

99. *Id.*

100. 654 F.2d 55 (Ct. Cl. 1981).

101. *Id.* at 61. The *General Electric* court emphasized that the exact identity between what was sold and what is claimed is not required, that a mere offer to sell, a single sale, or a sale subject to purchaser's approval is sufficient to trigger the "on sale" bar. *Id.* at 58.

102. *Id.* at 56.

103. *Id.*

104. *Id.* at 60.

105. *Id.* at 60-61.

106. *Id.* at 61-62. Compare this to the situation where the patent in dispute is related to a process for making a product and a third party has merely sold the product for more than one year prior to the critical date while keeping the process secret. As long as it was not evident from the product sold what process was used to produce it, then the patent will not be held invalid. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983).

107. 654 F.2d at 61.

108. *Id.* at 62.

requirement of reduction to practice could frustrate the two former policies.¹⁰⁹

In comparing GE's patented invention to the prototype, the *General Electric* court found that what is claimed as the invention does not need to be exactly identical to what was actually offered or sold.¹¹⁰ Relying on *Timely Products*, the court stated that if the claimed invention was obvious in view of the thing offered for sale prior to the critical date, then the patent would be invalid.¹¹¹

In 1982, the Federal Circuit Court of Appeals was created to interpret and develop the rules and principles of patent law.¹¹² The holdings of the Court of Claims and the Court of Customs and Patent Appeals ("CCPA") constituted precedent for the Federal Circuit.¹¹³ Since its creation, the Federal Circuit has had few opportunities to rule on the issue of completeness of the invention or reduction to practice.¹¹⁴

The Federal Circuit directly addressed the reduction to practice question in *Barmag Barmer Maschinenfabrik AG v. Murata Machinery Ltd.*¹¹⁵ There, the patent in dispute related to a machine for processing filament yarn.¹¹⁶ More than one year prior to the application date, the patent owner engaged in detailed negotiations with a potential buyer resulting in a purchase order for two machines after the critical date.¹¹⁷ Prior to the critical date, however, only a makeshift prototype machine existed.¹¹⁸

In defense of the "on sale" bar claim, the patent owner in *Barmag* asserted that the bar did not apply because the invention was neither complete nor sufficiently tested to verify operability and commercial marketability.¹¹⁹ The *Barmag* court defined "complete" according to the *Timely Products* test, as meaning that each element of the claimed patent must be found in the thing

109. *Id.*

110. *Id.* at 58.

111. *Id.*

112. The Federal Circuit was created because there was little uniformity or predictability in patent law. Each federal circuit court was developing its own interpretation, with some showing pro- or anti-patent bias. Moreover, the Supreme Court has decided patent related cases in the past 30 years. Rosenwein, *A Grand Experiment: Court of Appeals for the Federal Circuit*, CBA RECORD (Mar. 1987). See also 2 CHISUM, *supra* note 52, at § 11.06[3] (details creation of Federal Circuit, its jurisdiction and basis for its precedent).

113. An applicant whose patent application has been given a final rejection by the patent examiner may appeal the decision to the Board of Appeals. If the applicant is dissatisfied with the decision of the Board of Appeals, he may seek judicial review of the decision before the C.C.P.A. This proceeding is adversary in nature, pitting the Commissioner of Patents, represented by his solicitor against the applicant. See ROSENBERG, PATENT LAW, *supra* note 4, at 228-30.

114. *UMC Electronics Co. v. United States*, 816 F.2d 647, 652 (Fed. Cir. 1987), *cert. denied*, 98 L.Ed 2d 761 (1988). The Federal Circuit had addressed the issue of reduction to practice as a requirement of the "on sale" bar in only two previous cases: *Barmag Barmer Maschinenfabrik v. Murata Machinery Ltd.*, 731 F.2d 831 (Fed. Cir. 1984); and *General Elec. Co. v. United States*, 654 F.2d 55 (Ct. Cl. 1981).

115. 731 F.2d 831 (Fed. Cir. 1984).

116. *Id.* at 833.

117. *Id.*

118. *Id.* at 834.

119. *Id.* at 838.

offered for sale, or the claimed invention as a whole must have been obvious from the thing offered for sale.¹²⁰ The court held that whether the device was offered for sale as a make-shift prototype is immaterial under the first part of the *Timely Products* test.¹²¹

The *Barmag* court also examined the degree of testing required for application of the "on sale" bar and held that the *Timely Products* test does not require commercial marketability in addition to requiring reduction to practice.¹²² Once the invention has been reduced to practice, the invention is "complete," operable, and commercially marketable.¹²³ The court reiterated the holding of the Court of Claims in *General Electric*¹²⁴ that reduction to practice requires only that an invention be sufficiently tested to demonstrate it will work for its intended purpose. Moreover, the invention need not be in a commercially satisfactory stage of development when tested.¹²⁵ The court also specifically rejected the "on hand" test, relied on in early cases, as a requirement of section 102(b).¹²⁶

The *Barmag* court affirmed the district court's finding that the invention was on sale under the *Timely Products* three-part test.¹²⁷ The court, however, retreated from its predecessor's unqualified acceptance of the test, stating that the test is not the answer for all cases.¹²⁸ The Federal Circuit emphasized that the *Timely Products* test, while requiring less than the "on hand" standard, is still restrictive because it requires a physical embodiment of the thing offered for sale prior to the critical date before the bar is triggered.¹²⁹ Moreover, the court found that a situation could possibly arise where, because the commercial benefits prior to the critical date were great, the lack of a physical embodiment of the invention would defeat the policy of prohibiting commercial exploitation.¹³⁰ This situation arises where the invention is simple in nature and not based on complex technology and therefore does not require extensive testing to prove its utility.¹³¹ The Federal Circuit deferred to the lower court's finding that the *Timely Products* test had been met, and therefore did not consider whether a less stringent standard should be enunciated.¹³²

In a more recent case, *Western Marine Electronics v. Furuno Electric Co.*,¹³³ the Federal Circuit noted that the "on sale" bar is difficult to apply and that

120. *Id.*

121. *Id.*

122. *Id.*

123. *Id.*

124. *General Elec. Co. v. United States*, 654 F.2d 55, 62 (Ct. Cl. 1981).

125. *Barmag*, 731 F.2d at 838.

126. *Id.* at 837.

127. *Id.* at 838. See *supra* notes 89-96 and accompanying text.

128. *Barmag*, 731 F.2d at 837.

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. 764 F.2d 840, 844 (Fed. Cir. 1985).

rigid standards tend to undermine the policies implicated by the doctrine. The patent owner, Wesmar, appealed a ruling which invalidated four claims of its United States patent.¹³⁴ The patented invention was a gravity-stabilized sonar device for fishing boats.¹³⁵ Wesmar argued that the "on sale" bar did not apply because the invention had not been reduced to practice even though an offer to sell had been made. The device had not been mounted on a boat and, therefore, had not been sufficiently tested.¹³⁶ The Federal Circuit stated that a bare offer to sell cannot be viewed in a vacuum, but must be considered in connection with the facts and circumstances of each case weighed in view of the underlying public policies.¹³⁷ To effectuate the underlying policies, the Federal Circuit found that the totality of circumstances must be considered.¹³⁸ Consideration must be given to the character and extent of commercial activities, the type of invention and its stage of development as evidenced by engineering models, along with the character and extent of experimentation.¹³⁹ The Federal Circuit agreed with the trial court that the totality of the circumstances supported a finding that the invention, as embodied in a structure meeting all the elements of the claim, was reduced to practice.¹⁴⁰

In summary, the Federal Circuit has not explicitly held that reduction to practice is an absolute requirement of the "on sale" bar provision of section 102(b). However, the Federal Circuit has *assumed* from the holdings of its predecessor courts that an invention must have been reduced to practice more than one year before the filing of a patent application before the "on sale" bar is triggered.

II. UMC ELECTRONICS v. UNITED STATES

In *UMC Electronics v. United States*,¹⁴¹ the Federal Circuit, for the first time since its creation, addressed whether reduction to practice was an absolute requirement of the "on sale" bar. The court reviewed its past decisions and those of its predecessors before ruling that reduction to practice "has not been and should not be made an absolute requirement of the on sale bar."¹⁴²

134. *Id.* at 844.

135. *Id.* at 841.

136. *Id.* at 844.

137. *Id.* at 844-45. See also *Shatterproof Glass Corp. v. Libby-Owens Ford Co.*, 758 F.2d 613 (Fed. Cir. 1985) (offer for sale occurred prior to critical date, but invention not functional, thus no "on-sale" bar).

138. *Id.* at 845. See also *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144 (Fed. Cir. 1983) (evidence relating to hand-made samples used to find commercial exploitation prior to critical date).

139. *Id.* at 845. See *Barmag Barmer Maschinenfabrik v. Murata Machinery, Ltd.*, 731 F.2d 831 (Fed. Cir. 1984) (simplicity of invention may defeat the statutory policy because existence of a physical embodiment is not necessary for commercial exploitation).

140. *Id.* at 846.

141. 816 F.2d at 647, 652 (Fed. Cir. 1987).

142. *Id.* at 656.

A. *Factual and Procedural History*

In 1980, UMC sued the United States government, pursuant to 28 U.S.C. section 1498(a), to recover compensation for use of its patented aviation counting accelerometer ("ACA").¹⁴³ The application for the accelerometer patent was filed on August 1, 1968.¹⁴⁴ Since 1966, UMC had been developing an improved ACA which was capable of distinguishing between acceleration due to maneuvers and acceleration from other sources, such as wind gusts or weapons release.¹⁴⁵ In 1967, UMC built and tested an engineering prototype which incorporated a novel sensor component.

On July 27, 1967, five days prior to the critical date, UMC submitted a written bid proposal to the Navy to supply 1.7 million dollars worth of its ACA devices.¹⁴⁶ In the proposal, UMC described its ACA device and stated that the sensor portion "has been constructed and tested."¹⁴⁷ On August 2, 1967, one day after the critical date, UMC submitted a technical proposal which described its ACA device in detail and included test results and schematic drawings.¹⁴⁸ Seven days later, UMC gave a demonstration of the device to the Navy.¹⁴⁹ The Navy canceled the request and issued another later in 1968.¹⁵⁰ The later proposal eventually led to a contract between the Navy and another company, Systron-Donner.¹⁵¹ For the next several years, UMC sought compensation directly from the Navy, claiming that the Navy's use of the Systron-Donner ACA was an infringement of UMC's patent.¹⁵²

The Court of Claims upheld the validity of the UMC patent, which the government challenged on a number of grounds, including the "on sale" bar of section 102(b). However, the court found that no infringement had occurred and dismissed the complaint.¹⁵³ In rejecting the "on sale" bar argument, the Court of Claims used the three-part *Timely Products* test.¹⁵⁴ The court held that the invention had been reduced to practice prior to the critical date, but that the complete invention was not embodied in the "thing" offered for sale because the engineering prototype did not include all the elements of the claims nor would the patented invention have been obvious in view of the prototype.¹⁵⁵ Both parties appealed. UMC asked for reversal of the finding of non-infringement, and the government sought to have the claims invalidated.

143. *Id.* at 649.

144. *Id.*

145. *Id.*

146. *Id.* at 650.

147. *Id.*

148. *Id.*

149. *Id.*

150. *Id.*

151. *Id.*

152. *Id.* at 650.

153. *Id.* at 648.

154. *Id.* at 650. See *supra* notes 89-90 and accompanying text.

155. *UMC Electronics Co.*, 816 F.2d at 651.

B. On Appeal to the Federal Circuit—Majority Opinion

A majority of the Federal Circuit affirmed the Court of Claims' dismissal of the suit against the government, but based its decision on different grounds. The Federal Circuit found that the patented UMC invention was on sale more than one year before the patent application was filed. Accordingly, the court held that all claims of the patent were invalid.¹⁵⁶

The majority began its opinion by redefining what UMC offered for sale. The Federal Circuit found that it was not UMC's prototype which was the "thing" offered for sale in the written bid proposal of July 27.¹⁵⁷ The subject matter of the proposal was the claimed invention. Next, the court corrected the apparent inconsistency in the Court of Claims' conclusion that the claimed invention was reduced to practice before the critical date and its finding that no physical embodiment of the invention existed at the time.¹⁵⁸ Considering that no physical embodiment containing all limitations of the invention existed before the critical date, the court found that the invention could not have been "reduced to practice" within the meaning established by earlier cases.¹⁵⁹ The government, however, argued that the bar should apply despite the absence of a complete physical embodiment because UMC had commercially exploited the invention. Such activity, the government argued, contravened the policies underlying section 102(b).¹⁶⁰

The majority agreed with the government's contention that the four policies¹⁶¹ underlying the bar are controlling and that reduction to practice is not always a requirement of the "on sale" bar.¹⁶² In support, the court relied on *Barmag Barmer Maschinenfabrik AG v. Murata Machinery Ltd.*,¹⁶³ emphasizing that the court in that case had gone "out of its way to reserve the question whether a physical embodiment should be a requirement of the 'on sale' bar in all cases."¹⁶⁴

The UMC court also noted that in a number of earlier decisions, the factual findings leading to a conclusion that there was no "on sale" bar appeared to be based on the assumption that reduction to practice is required, even though the term "reduction to practice" was not mentioned in the decisions.¹⁶⁵ Moreover, the Federal Circuit noted that the caselaw of other courts was not

156. *Id.* at 656

157. *Id.* at 651.

158. *Id.*

159. *Id.* at 651-52.

160. *Id.*

161. See *supra* notes 33-50 and accompanying text.

162. *UMC Electronics Co.*, 816 F.2d at 652-53.

163. See *supra* note 115.

164. *UMC Electronics Co.*, 816 F.2d at 653.

165. *Id.* at 654. See *Shatterproof Glass Corp. v. Libbey Owens Ford Co.*, 758 F.2d 613 (Fed. Cir. 1985), *cert. dismissed*, 106 S. Ct. 340 (1985) ("on sale" bar not applicable where reasonable jury could have found that apparatus and method of claims were not functional); *In re Dybel*, 524 F.2d 1393 (C.C.P.A. 1975) (invention not in existence until installed on another device as called for by the patent claims).

uniform, with some circuit courts attempting to "shoehorn the reduction to practice requirement concept into the on sale bar analysis" by adopting a "sufficiently" reduced to practice requirement.¹⁶⁶ The court viewed this modified "reduction to practice" requirement as a departure from the traditional concept.¹⁶⁷ Because "reduction to practice" is a term of art developed in connection with interference practice, the majority found that its modified use in application to the "on sale" bar would cause confusion in interference law.¹⁶⁸ Thus, any specific ruling in one context would impact upon the other area of law. Conversely, the court found that a strict application of the reduction to practice requirement as developed in interference law, would enable an inventor to escape the "on sale" bar simply through deft claim draftsmanship.¹⁶⁹

In further support of its holding that reduction to practice is not a per se requirement of the "on sale" bar, the Federal Circuit noted the inherent inconsistency of the *Timely Products* three-part test. The first part of the test can be satisfied if the claimed invention would have been obvious in view of the "thing" offered for sale. Satisfaction of the second part of the test requires that the invention be reduced to practice. The court found that an absence of reduction to practice of the claimed invention is implicit in the obviousness standard. Because the first part of the test can apply to situations where the "thing" offered for sale does not embody all of the elements of the claimed invention, the invention cannot be the subject of the sale. Therefore, the first and second parts of the *Timely Products* test are mutually exclusive.¹⁷⁰ The Federal Circuit's reasoning assumed that the reduction to practice requirement is satisfied only when the precise invention expressed in a claim is physically embodied in the "thing" offered for sale.¹⁷¹ According to the first prong of the test, the bar is applicable if the claimed invention is merely obvious in view of the thing offered for sale. Although the court held that reduction to practice was not an absolute requirement, the majority noted that it is still an important tool in an "on sale" analysis.¹⁷² Moreover, proof that an invention had been reduced to practice prior to the critical date would lessen the burden on the party asserting the bar.¹⁷³ It is more likely that the manufacturer would

166. *UMC Electronics Co.*, 816 F.2d at 655. The Federal Circuit cited to five circuit courts of appeals to support its conclusion that regional circuits have previously given only lip service to a requirement of reduction to practice as part of the on-sale bar. *Id.*

167. *Id.* See *Barmag Barmer Maschinenfabrik v. Murata Machinery Ltd.*, 731 F.2d 831 (Fed. Cir. 1984) (Federal Circuit discerns no distinction in their precedents between interference cases and "on-sale" cases with respect to meaning of "reduction to practice").

168. *UMC Electronics Co.*, 816 F.2d at 655.

169. *Id.* at 655. As an example of such claim draftsmanship, CAFC used an example where the patentee could have claimed "an aircraft with an ACA" vs. just "an ACA." Based on the former, the invention would not be reduced to practice unless the entire ACA was installed on an aircraft. *Id.* at 655 n.10.

170. *Id.* at 656.

171. *Id.*

172. *Id.*

173. *Id.* at 656.

market a product which had been thoroughly developed and tested. Further, the court stated that its holding did not lend itself to precise requirements.¹⁷⁴ However, the party asserting the bar must prove there was a definite sale or offer to sell more than one year before the patent application, and that the subject matter of the sale or offer to sell fully anticipated the claimed invention or would have rendered the claimed invention obvious by its addition to the prior art.¹⁷⁵ Once this is established, the burden shifts to the patent holder to explain why his activities would not activate the bar.¹⁷⁶ In determining whether something less than a complete embodiment of the invention will suffice under the "on sale" bar, the court recommended that several factors be considered: the intent of the inventor; the degree of development of the invention; the commercial activities; and the testing conducted to satisfy the inventor that the invention would work.¹⁷⁷

Applying these principles, the Federal Circuit found that UMC's written proposal constituted a definite offer to sell its ACA device. The offer occurred more than one year prior to the date of the patent application and, as UMC admitted, the offer was made for commercial purposes.¹⁷⁸ The court held that these activities were prima facie evidence of UMC's attempt to expand the one-year grace period and, thus, violated the policies underlying section 102(b).¹⁷⁹ UMC attempted to rebut the prima facie evidence by arguing that the ACA device was not fully developed at the time of the offer. The court found the evidence supporting this argument insufficient. Accordingly, the court invalidated all the claims of the UMC patent.¹⁸⁰

C. Dissenting Opinion

In a strong dissenting opinion, Judge Smith accused the panel majority of "disembod[y] a fundamental principle of patent law which a respectable body of precedent holds to exist."¹⁸¹ The dissent emphasized the importance of stability in the law, and stated that the court failed to give adequate consideration to stare decisis and its underlying policies.¹⁸² Moreover, the adopted jurisprudence of the Federal Circuit's predecessors can only be over-

174. *Id.*

175. *Id.*

176. *Id.*

177. *Id.*

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.* at 658.

182. *Id.* See *South Corp. v. United States*, 690 F.2d 1368 (Fed. Cir. 1982). In *South Corp.*, the Court of Appeals for the Federal Circuit held that the holdings of its predecessor courts, the United States Court of Claims and United States Court of Customs and Patent Appeals, shall be binding precedent. Further, the Court of Appeals for the Federal Circuit stated that to proceed without precedent "would deprive the bar and the public of the stability and predictability essential to the effort of a free society to live under a rule of law." *Id.* at 1370.

ruled by the court sitting en banc.¹⁸³ The dissent argued that past decisions have held that the classical definition of reduction to practice—that a device must be in existence and shown to work for its intended purpose—was a threshold requirement for the “on sale” bar.¹⁸⁴ Judge Smith argued that it was important that an inventor know precisely when the bar begins to run because a violation of section 102(b) results in an irretrievable loss of a valuable right to a patent.¹⁸⁵

In contrast to the majority, the dissent did not find the three-part test of *Timely Products* inherently inconsistent. Instead, the dissent’s interpretation of the test focused on the object or “thing” offered for sale. For the bar to apply, the “thing” offered for sale must have been completed and shown to work for its intended purpose, i.e. reduced to practice, prior to the critical date. The “thing” offered did not necessarily have to have been the claimed invention. The bar would apply if the invention would have been obvious in view of the “thing” offered, provided the “thing” was reduced to practice.¹⁸⁶ The dissent concluded that because the “thing” offered by UMC to the Navy on July 27, 1967 was a bid proposal, and the invention was not reduced to practice, the bar was not applicable.¹⁸⁷

III. ANALYSIS OF *UMC ELECTRONICS V. UNITED STATES*

The majority holding in *UMC* does not substantially change the law concerning issues related to the “on sale” bar, it merely establishes that the four basic policies reflected in section 102(b) should be considered when a court determines whether an inventor has placed a claimed invention on sale more than one year prior to the patent application filing date. By holding that reduction to practice is not an absolute requirement of the “on sale” bar, the majority sought to confine the “reduction to practice” requirement to its traditional sphere in the highly technical patent interference practice. Although the majority did not establish a rigid set of rules which are easily applied, their approach minimizes the potential for circumventing the objectives of patent law.

The majority did not view its holding as overturning its own precedent or that of its predecessor courts because there was no definitive position either way on the issue of whether “reduction to practice” was an absolute requirement of the “on sale” bar.¹⁸⁸ Only two prior cases directly addressed the issue

183. *South Corp.*, 690 F.2d at 1370. See also *Kimberly-Clark Corp. v. Fort Howard Paper Co.*, 772 F.2d 860 (Fed. Cir. 1985) (Federal Circuit specifically states that only a majority sitting en banc may overrule precedent).

184. *UMC Electronics Co.*, 816 F.2d at 659.

185. *Id.* See *supra* note 5.

186. *UMC Electronics Co.*, 816 F.2d at 661.

187. *Id.* at 665.

188. *Id.* at 654. See also *NLRB v. Boeing Co.*, 412 U.S. 67, 72 (1973) (premise assumed in earlier cases is rejected when court was, at last, “squarely presented with the issue”).

and in neither instance did the court give a definite answer.¹⁸⁹ Additionally, the holding in *UMC* is consistent with the text of section 102(b). The term "reduction to practice" does not appear in this section.¹⁹⁰ Only in section 102(g), which is the basis for interference claims, does the term appear.¹⁹¹

The majority position directly addresses two of the policy concerns behind the "on sale" bar. The first is the policy which prohibits an inventor from unreasonably extending his seventeen year monopoly guaranteed by the patent grant. *UMC* began its commercial exploitation more than one year prior to the date the patent application was filed. Thus, *UMC* availed itself not only of the seventeen year grant but also of the one year grace period as provided in section 102(b). The other policy which supports the outcome in *UMC* is the inventor's interest in having a reasonable amount of time following sales activity to determine whether a patent is a worthwhile investment.

These two policies support the contention that substantial commercial exploitation of a claimed invention could raise an "on sale" bar, despite the absence of a complete physical embodiment. The factual situation in *UMC* was similar to that of *Langsett v. Marmet Corp.*¹⁹² and *Philco Corp. v. Admiral Corp.*¹⁹³ In all three cases, the inventor disclosed to potential customers either details of his invention, partial completed samples, or a nonfunctional mock-up. In none of the cases was a complete physical embodiment of the invention commercially exploited. In other words, in none of the cases was the claimed invention "reduced to practice," in the interference sense, prior to the critical date. In the absence of an invention which had been reduced to practice, the courts employed the "totality of the circumstances" analysis to find that each of the inventions was "on sale" within the meaning of section 102(b).¹⁹⁴

As noted in the *UMC* dissent, the risk involved in not requiring a working embodiment of the invention as the threshold condition to a determination of an "on sale" bar is to force premature entry into the patent system by inventors who are still developing their inventions.¹⁹⁵ This premature entry

189. 816 F.2d at 654. See *Great N. Corp. v. Davis Core & Pad Co.*, 782 F.2d 159 (Fed. Cir. 1986); *Shatterproof Glass Corp. v. Libby Owens Ford Co.*, 758 F.2d 613 (Fed. Cir.), cert. dismissed, 106 S. Ct. 340 (1985); *In re Dybel*, 524 F.2d 1393 (C.C.P.A. 1975).

190. See Colman, *supra* note 8, at 677-79.

191. A person shall be entitled to a patent unless—(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

35 U.S.C. § 102(g) (1982).

192. 231 F. Supp. 759 (W.D. Wis. 1964).

193. 199 F. Supp. 797 (D. Del. 1961).

194. See, e.g., *Philco*, 199 F. Supp. at 817 (whether an item is "on sale" is a question of fact to be determined upon all the evidence and in light of all circumstances of case).

195. *UMC Electronics Corp.*, 816 F.2d at 664-65.

wastes not only the resources of the inventor but also the resources of the Patent Office. The predicted rush to the Patent Office can be avoided if the inventor carefully examines his own factual situation and compares it to the "totality of circumstances" considerations that the majority set forth.

Most important in the "totality of circumstances" standard is the degree of confidence that the inventor has in the completeness of his invention. This is measured by the inventor's level of commercial activity and the amount of testing performed by the inventor. Commercial activity, such as the government contract bidding in *UMC*, is strong evidence that the inventor is confident that the invention is feasible and has progressed beyond the mere conception of an idea. Other probative evidence would be the existence of a marketing plan, the scope and breadth of a research program, and whether production of raw materials has been established. The less complex the invention is, the easier it will be for the inventor to have the requisite confidence. This consideration addresses the concern of the *Barmag* court, which stated that the physical embodiment requirement of the three-part *Timely Products* test would defeat the policy prohibiting commercial exploitation beyond the statutory one-year grace period.¹⁹⁶ Application of the *Timely Products* test to the fact situation in *Langsett* would have caused the court to reach a contrary result. No physical embodiment of the window frame existed at the time the invention was placed on sale. The court examined the circumstances surrounding the inventor's proposal to the architect and found that the inventor had such confidence in the workability of the window frame that the architect, through his activities, commercialized the invention.¹⁹⁷

Also relevant in the determination of whether the invention is "on sale" is the degree of disclosure by the inventor of the invention's details. Disclosure is an act which communicates a real expression of the "concept" of the invention.¹⁹⁸ An oral or written description, embodying all of the structural elements of the invention, may alone be enough to satisfy the totality of circumstances standard.¹⁹⁹ Thus, the existence of a diagrammatic or written explanation, if it is precise enough to enable one of ordinary skill to manufacture the invention; may be sufficient to trigger the running of the bar. This is especially true if it can be proved that the customer understood that the device being offered or described to him comprised the invention later patented. However, the policies underlying the "on sale" bar focus on the attempt by the inventor to exploit his invention, not whether the potential purchaser was cognizant of the invention. Accordingly, the purchaser need not have actual knowledge of the invention for the invention to be considered on sale.²⁰⁰

196. *Barmag Barmer Maschinenfabrik v. Murata Machinery, Ltd.*, 731 F.2d 831, 838 (Fed. Cir. 1984).

197. *Langsett*, 231 F.Supp at 768.

198. See Colman, *supra* note 8, at 677-79.

199. *Id.*

200. See *In re Blaisdell*, 242 F.2d 799, 783 (C.C.P.A. 1957) (Tapered shim for crankshafts installed on car and sold to third party without disclosure of the shim can constitute "on sale activity").

The other two policies underlying the "on sale" bar are of secondary importance to the *UMC* decision. The policy against removing inventions from the public domain, and the policy favoring prompt and widespread disclosure to the public of new inventions, deserve less consideration given the nature of the invention in *UMC*. The ACA is a sophisticated electronic device which has a very specific and limited use. As such, the importance of disclosing the device to the public in general is not overwhelming. Likewise, the commercial exploitation by UMC through the United States Navy bid proposal probably did not cause the public to justifiably believe that the ACA device was available to all without patent protection.

One problem created by the majority's holding is the uncertainty as to when the bar begins to run. Without a precise standard, such as the reduction to practice requirement, the inventor cannot be certain when his statutory one-year grace period begins. As noted by the dissent, the consequences of the failure to perceive the point at which the bar begins are severe. Such failure results in an irretrievable forfeiture of the right to a patent. However, this situation can be avoided if the inventor accepts the notion that the clock begins the moment the first offer to sell is made. Therefore, once the inventor has mustered his confidence that his invention is commercially marketable, and he has made some disclosure to a potential customer, he should decide within one year from that time whether to seek patent protection or to take his chances in the market.

The dissent defended the *Timely Product* three-part test from the majority's claim that it is inherently inconsistent. The test, according to the dissent, is based on the premise that it is the "thing" offered for sale which must be reduced to practice, regardless of whether the "thing" offered is the claimed invention.²⁰¹ This reasoning is sound when the facts are similar to those in *Timely Products*. There the "thing" offered was covered by a patent, although not the patent in dispute. However, where the "thing" offered is not covered by a patent, then there exists no basis upon which to determine whether the "thing" has been reduced to practice. Using the majority's "totality of circumstances" standard avoids this problem. Under this standard, the "thing" offered is examined only to determine whether the claimed invention would have been obvious.

IV. IMPACT

As a result of the *UMC* decision, an aspect of certainty is sacrificed to satisfy the underlying public policies. Without a mechanically applied set of rules or the reduction to practice standard, neither the inventor nor the patent attorney will know how the time limit for filing a patent application will be measured or where the line will be drawn between raw idea and proved invention. This could stifle the inventive process because inventors, fearful of

201. See *supra* note 186.

triggering the bar, would be hesitant to seek financing or test the market potential before they had made a workable device. Alternatively, the lack of certainty may force the inventor to file patent applications prematurely to protect untested and speculative ideas. This possibility would contravene the purpose of the patent system which is to encourage the creation of *useful* inventions, not bare ideas.²⁰²

In light of the historical difficulties with interpreting the phrase "on sale" and the potential difficulties arising from the Federal Circuit's holding in *UMC*, the following method for determining whether an invention was "on sale" within the meaning of section 102(b) is proposed. This step-by-step method is a modified and updated version of a previously proposed test.²⁰³

First, the court must examine whether there was an offer to sell, an executory sale, or an executed sale prior to the critical date. Although only a single offer is needed, it is necessary that some commercial exploitation occur to trigger the "on sale" bar. Commercial exploitation may be conducted by anyone, either openly or surreptitiously. However, an inventor who is merely seeking developmental assistance would not be considered to have placed his invention on sale.²⁰⁴ This is the experimental exception to the "on sale" bar.²⁰⁵ If no commercial exploitation occurred prior to the critical date, then the "on sale" bar is inapplicable. However, if commercial activity is identified, the inquiry must proceed. Applying this first step to the facts in *UMC* indicates that the submission of the bid proposal clearly constituted commercial activity. The proposal was an offer of the ACA device for sale. Further, *UMC* admitted that the offer was made for profit and not merely to conduct experiments.

Second, the court must evaluate all the circumstances surrounding the commercial exploitation and weigh them against the four policies underlying the statute. If the "thing" offered for sale prior to the critical date was a complete physical embodiment of the claimed invention, then clearly the "on sale" bar applies. Both parties and the court in *UMC* agreed that there was no physical embodiment containing all limitations of the claimed invention before the critical date. Where the "thing" offered lacks one or more critical elements of the claimed invention, then it should be determined whether the claimed invention would have been obvious to one skilled in the art in view of the "thing" offered. If so, then the bar applies. If not, further examination of the circumstances is warranted. A variety of facts surrounding the offer

202. See *supra* note 21.

203. See Note, *New Guidelines*, *supra* note 7, at 746-47 (original test assumed reduction to practice was a requirement and did not account for the obviousness test set forth in *Timely Products*).

204. See *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1150 (Fed. Cir. 1983). However, the experimental exception applies only if the commercial exploitation is merely incidental to the primary purpose of experimentation to perfect the invention. *Barmag Barmer Maschinenfabrik v. Murata Machinery Ltd.*, 731 F.2d 831, 838 (Fed. Cir. 1984 (citing to *In re Thais*, 610 F.2d 786, 793 (C.C.P.A. 1979))).

205. See *supra* note 51.

for sale constitute the totality of circumstances which should be examined. The inventor's conduct and intent indicates the degree of confidence the inventor has in his invention. Likewise, the acceptance by a potential buyer is an indication of the completeness of the invention. Another important factor is the amount of testing that was conducted to satisfy the inventor that the invention would work. Also, the nature of the invention is important as a simple invention may require little or no testing, while a more complex invention may require extensive testing.

Finally, the court should consider the degree of development of the invention at the time of the offer. This evaluation would measure the completeness of the invention. A comparison of the facts in *UMC* with these factors shows that the ACA device was not a simple invention. However, evidence established that the device was well developed and had been tested. The inventor was also confident that the device would work. This confidence was manifested by his intent to supply the United States Navy with over 1.6 million dollars worth of the devices.

Application of this proposed step-by-step method would have alerted the inventor in *UMC* at the time the bid proposal was made to actively seek patent protection. By promptly filing a patent application within one year, the "on sale" bar issue could have easily been avoided.

V. CONCLUSION

For the first time since its creation in 1982, the Federal Circuit has expressly ruled on whether "reduction to practice" is necessary before an invention is found to have been "on sale" within the meaning of 35 U.S.C. section 102(b). In *UMC Electronics v. United States*, a majority held that a reduction to practice is not absolutely required, proposing instead that a totality of circumstances standard be used. This standard weighs factors such as the nature of the invention, the inventor's confidence, and the degree of development and testing against the underlying policies of the "on sale" provision of section 102(b).

Under the *UMC* decision, inventors and patent attorneys will not have a clear and easily applied standard to determine when the bar begins to run. This lack of certainty may inhibit inventors from seeking outside financing or testing potential markets for fear of triggering the bar. Moreover, inventors may prematurely file patent applications before their inventions are sufficiently developed to meet the disclosure requirements imposed by section 112 of Title 35. It is proposed, however, that the one-year grace period begins to run at the moment of the first offer to sell, regardless of whether or not a physical embodiment exists. Albeit conservative, this rule would prevent the irretrievable loss of the valuable right to a patent.

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